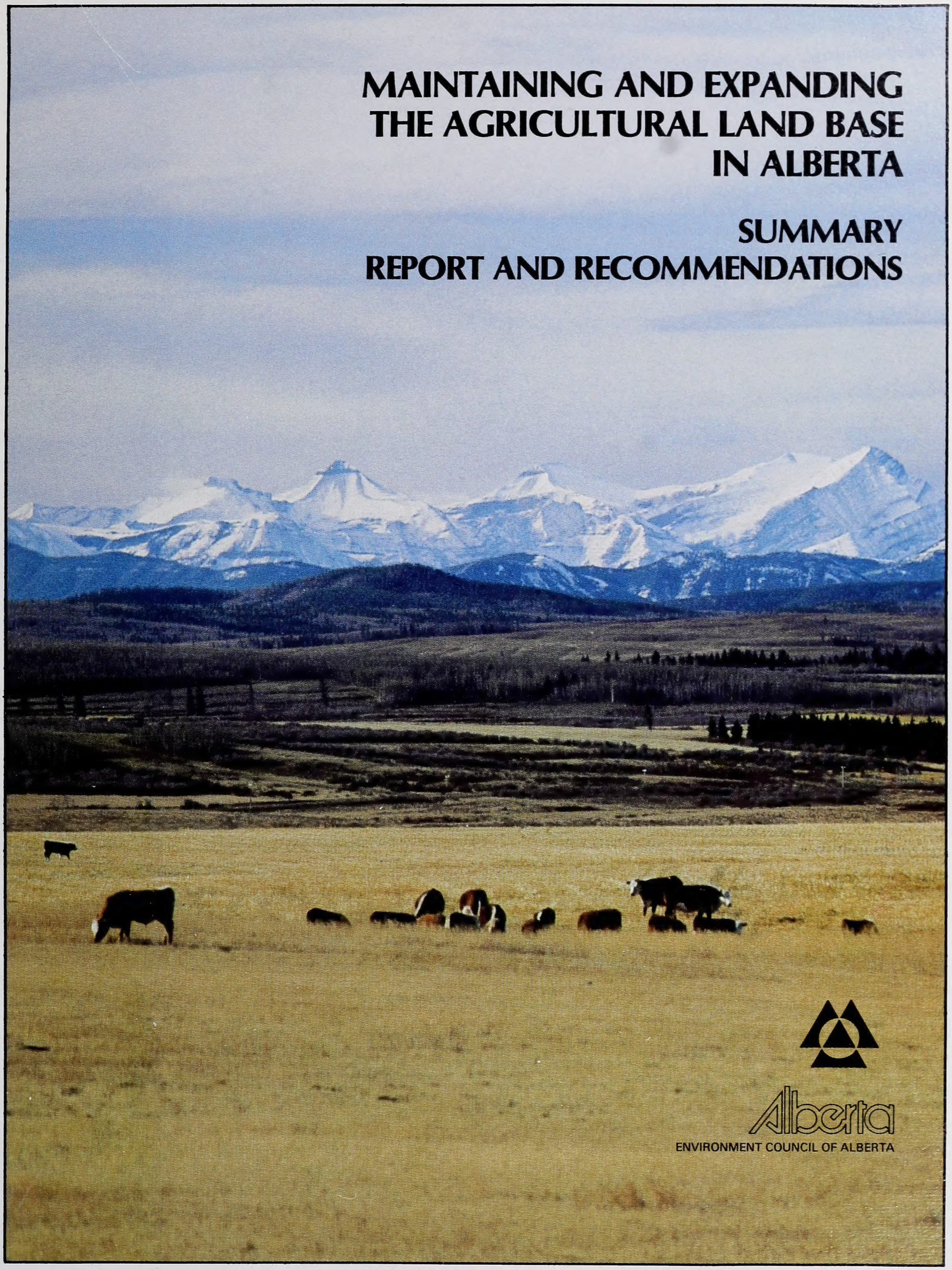

MAINTAINING AND EXPANDING THE AGRICULTURAL LAND BASE IN ALBERTA

SUMMARY
REPORT AND RECOMMENDATIONS

Alberta
ENVIRONMENT COUNCIL OF ALBERTA

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Maintaining and Expanding the Agricultural Land Base in Alberta

Summary
Report and Recommendations

DECEMBER 1984

Alberta
ENVIRONMENT COUNCIL OF ALBERTA

Copies of this
report may be obtained
upon request to

Environment Council of Alberta
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Edmonton, Alberta
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Telephone: (403) 427-5792

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ECA84-17/RR1

Lieutenant-Governor in Council
Legislature Building
EDMONTON, Alberta

Honourable F.D. Bradley
Minister
Department of the Environment
132 Legislature Building
EDMONTON, Alberta
T5K 2B6

Dear Sirs:

I have the honour to transmit, herewith, the Report and Recommendations of the Environment Council of Alberta on Maintaining and Expanding the Agricultural Land Base in Alberta, as required under Section 7 (1) (i) of the Environment Council Act (Chapter E-13 R.S.A. 1980).

I have the honour to be, Sirs,

Your obedient servant,

Chas Stewart

Charles Stewart
Chairman, Agricultural Land Base Panel
Environment Council of Alberta

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INTRODUCTION

By Order in Council, the Agriculture Panel of the Environment Council of Alberta was directed to enquire into means for maintaining and expanding the agricultural land base and for maintaining its production. Specific issues included:

a) identification of concerns, possible causes, and recommendations in respect to problems of soil erosion and salinization.
b) potential productivity opportunities based on agricultural research in both livestock and other agricultural production.
c) the use of greenhouse production including potential capacity and identification of suitable geographic areas.
d) the potential effect of urban growth, industrial development, and the land requirements of pipelines, power lines, roads, and airports on our agricultural land base.
e) the use of fertilizers and chemicals and procedures used in summerfallowing and soil banking in relation to the efficiency of current and proposed agricultural practices.

The Panel was asked to hold public hearings on the topic and to prepare a report for the Lieutenant Governor in Council and the Minister of the Environment.

Panel members appointed for this task were:

Charles Stewart — Chairman
A former MLA for Wainwright, retired agri-businessman, with an extensive background managing feedlots, ranching, and livestock marketing.

Alistair Crerar — Vice-Chairman
An economist-planner, and Chief Executive Officer of the Environment Council, who has been Vice-Chairman on four previous ECA public hearing panels.

Walter Van De Walle — Member
An active farmer from Legal with extensive experience in grain, oilseed, and forage marketing, as well as in local government, farm organizations, and agribusiness.

James Lore — Member
A professional agrologist, a farmer in the Carstairs area, and an agricultural consultant with offices in Calgary, whose professional specialization includes land appraisal and land use planning as it affects agriculture.

George Walker — Member
A professional engineer and land surveyor with extensive experience in land development throughout the province as a partner in

an Edmonton-based engineering firm, as a consultant, and as a director or executive member (including chairmanships) of HUDAC-Edmonton and the Urban Development Institute.

The public hearings were preceded by an extensive information program. Information was presented in 15 technical reports, 16 summary reports, a brochure, and a film, *Tomorrow's Bread* (see Appendix A, inside back cover).

Hearings were held at 17 locations, totalling 25 days. They began on July 28, 1983 in Fort Vermilion and concluded in Edmonton on December 15, 1983. Public demand necessitated an extra day of hearings in Red Deer and three extra days in Edmonton.

Two hundred and seventy-six presentations were made and they came from many segments of society. About 40 percent were personal, 19 percent were from agricultural groups, and 15 percent were from municipal governments. All regional planning commissions and the federal government participated.

The Panel met with provincial and federal government agencies before preparation of this report. In addition, they attended several relevant conferences and seminars.

The following pages summarize the results of the Panel's enquiry into the maintenance and expansion of Alberta's agricultural land base.

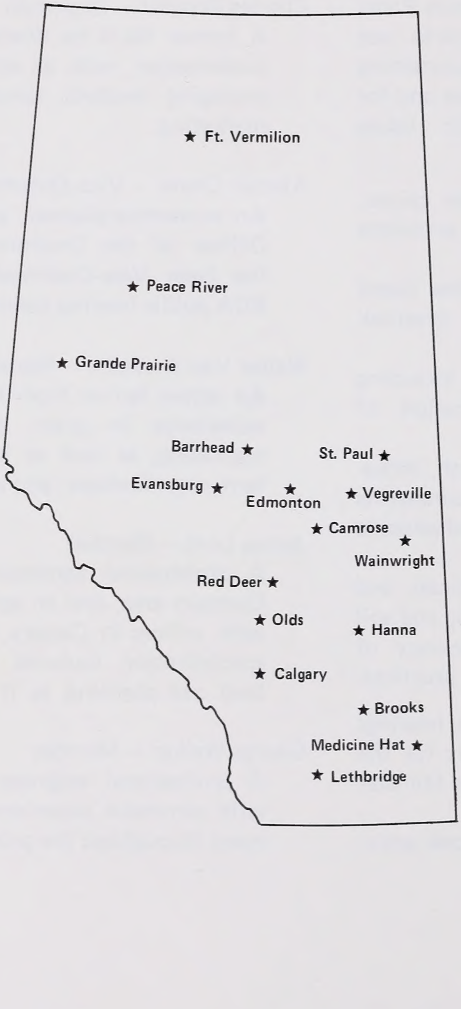

Figure 1 Location of Public Hearings

Why should there be a concern for the maintenance and expansion of the agricultural land base?

It is usually considered that oil and gas and chemical production are the principal supports of Alberta's economy. This is accurate if only the value of shipments is considered. In 1982 farm cash receipts were $3.8 billion while shipments of oil, gas, and coal were valued at $19.3 billion. However, the oil, gas, and coal primary industries provided employment for 59,800 people in 1982 while primary agriculture provided employment for 81,000 people. In manufacturing in 1980, the food and beverage sector provided employment for 16,133 people, 20 percent of the total employment in manufacturing, while petroleum, coal, and chemical and chemical products provided employment for 9,081 people, 11.2 percent of total manufacturing employment.

In terms of providing employment either directly or through manufacturing, agriculture still dominates the Alberta economy. Moreover, unlike the energy sector, it is based on a potentially renewable resource — the 50 million acres of occupied farmland which could be available to grow crops forever.

In addition, only a portion of the potential impact of agricultural production is presently realized. Manning and Anderson* have estimated

> *... if all of the additional commodities had been exported from the region in raw form, the farmers' share [of additional net benefits] would have been 35 percent. Conversely, if all of the additional commodities had been processed in the region and exported in finished form, the farmers' share would have been only 9 percent, not because the farmers received less but because others would have received much more [p. 10].*

Even though agricultural production already supports an important manufacturing and service industry, it is capable of achieving even greater impacts if more of its production were processed locally rather than being exported in raw form.

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Meat Packing Industry

Alberta Gov't Photo Library

Alfalfa Dehydration Plant

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*Manning, T.W. and A.W. Anderson. 1984. *The Repayment of Water Resource Development Costs.* Department of Rural Economy, the University of Alberta. 15 pages.

Alberta's agriculture has developed on the basis of commercial viability in world markets. Its future will depend on the ability to maintain a world-class competitive capability for food production. This can only be done if we maintain the present productive capability of the agricultural land base and expand on that base in the future, as opportunities in the marketplace arise.

Of total cash receipts from farming operations in 1982 of $3.8 billion, the following can be identified as being in shielded or sheltered markets, through supply-managed marketing boards or national quotas.

Product	Farm Cash Receipts (Million $)
Dairy Products	226.8
Poultry	81.0
Eggs	42.6
Sugar Beets	15.4
Total	$ 365.8

Less than 10 percent of the dollar volume of Alberta's agricultural production is fully shielded from world markets. For the remainder the products are either sold directly into world markets or prices received are established primarily by world markets.

The costs of most major inputs to farming are also established outside Alberta. Farm machinery, fertilizers, and chemicals, even if locally produced, have their prices established internationally. Interest rates and the price of fuel and lubricants are essentially established outside the province though there are attempts to provide some sheltering to local farmers. Even the cost of locally produced feed is established internationally by the prices available on the export market. Only two major farm input costs are established regionally within the province — farm wages and farmland prices. Since farm wages are paid directly by the farmer to hired hands, or implicitly to himself or his family, there is a reasonable degree of control over this aspect, usually manifested by the farmer foregoing implicit wages in hard times.

However, land prices, though established locally, are not entirely subject to the control of the agricultural industry. Land costs have been an important and growing element in the total capital value of farms, with the proportion represented by lands and buildings rising from 76.5 percent in 1975 to 80.9 percent in 1982, while the total value of farm capital increased from $11.7 billion to $37.4 billion. Since during the same period interest rates on conventional mortgages increased from 11.43 percent to 17.89 percent, the total cost escalation was compounded, with increased capital costs having to be paid at rising interest rates.

If agricultural land values were established strictly by future returns anticipated from agricultural production, the situation would be acceptable. However, this is not the case. Because of the uncertain commitment to the preservation of agricultural land, there has been a possibility, for virtually any parcel, that use could be changed to some non-agricultural purpose with a higher value. In the face of this uncertainty agricultural land has acquired speculative non-agricultural values, greatest near urban centres but prevalent throughout most of the province, partly due to a ripple effect from urban transactions and roll over provisions of tax laws relating to the sale of farmlands.

To provide the base on which a world-class competitive commercial agricultural industry can flourish there must be:

1) Agricultural land capable of producing reasonable yields without excessive input costs.
2) Agricultural land prices based principally on the expectations of returns from continued agricultural use.

Policies clearly committed to maintaining the agricultural land base would achieve both purposes, retaining land in agriculture and reducing speculation on the possibility of alternative uses.

Although there is substantial potential for expansion of the agricultural land base in the north, it is still essential to conserve the existing agricultural land base.

At each farm census up to 1976 the area of occupied farmland in Alberta expanded substantially. This expansion then came to a halt. Though there is some dispute about definitions, the 1981 occupied area of census farms is virtually identical with 1976 at 49.93 million acres. However, that seeming stability masks a substantial change as outlined in a Resource Economics Branch publication, *An Inventory of Changes in Alberta's Agricultural Land Base Between 1976 and 1980.**

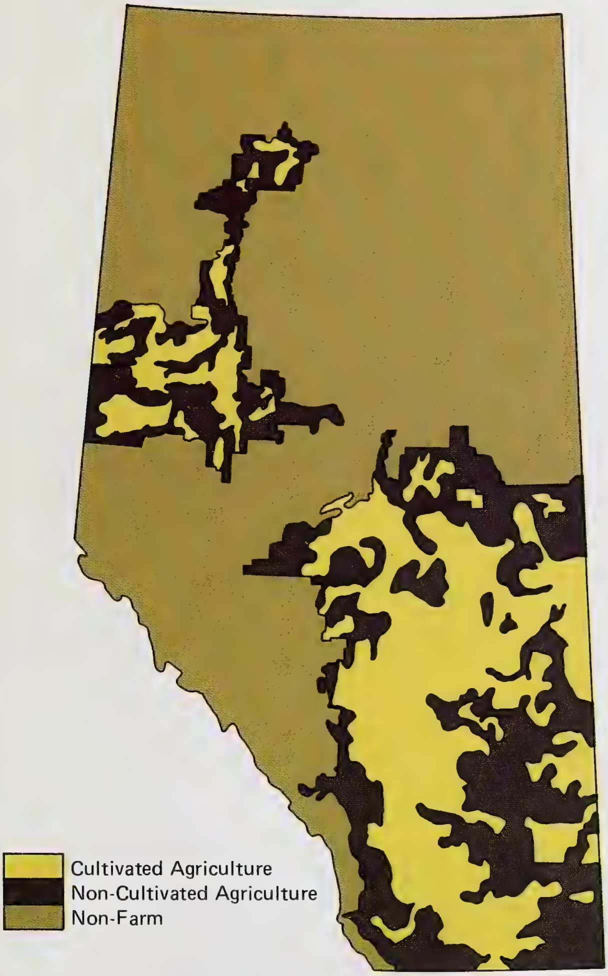

Figure 2 Land Use In Alberta

Source: data from Land Use Branch, Alberta Agriculture, 1984.

SUMMARY OF AGRICULTURAL LAND BASE CHANGES IN ALBERTA, 1976-80

	Thousands of Acres
Additions of Agricultural Land	
Public Land Disposition	371.2
Reclaimed Oil and Gas Wells	13.5
Reclaimed Strip Mines	2.0
Total Additions	**386.7**
Removals of Agricultural Land	
Non-agricultural Subdivisions	139.8
Urban Annexations	90.9
Roads	25.1
Oil and Gas Wells	103.1
Gas Plants	0.4
Coal Strip Mines	1.9
Public Land Reservation	28.9
Total Removals	**390.1**

Source: *An Inventory of Changes in Alberta's Agricultural Land Base Between 1976 and 1980,* page 29.

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*Birch, A., Project Leader. 1982. *An Inventory of Changes in Alberta's Agricultural Land Base Between 1976 and 1980.* Resource Economics Branch, Alberta Agriculture. 83 pages plus appendices.

The quality of the additions to the agricultural land base does not match the quality of the removals.

LAND BASE CHANGES BY CLI CLASSES
Alberta 1976-80

Thousands of Acres

	CLI Class 1 – 3	CLI Class 4	CLI Class 5 – 7 and Organic
Additions	91.2	172.2	116.8
Removals	182.1	83.7	120.3

Source: *An Inventory of Changes in Alberta's Agricultural Land Base Between 1976 and 1980*, page 34.

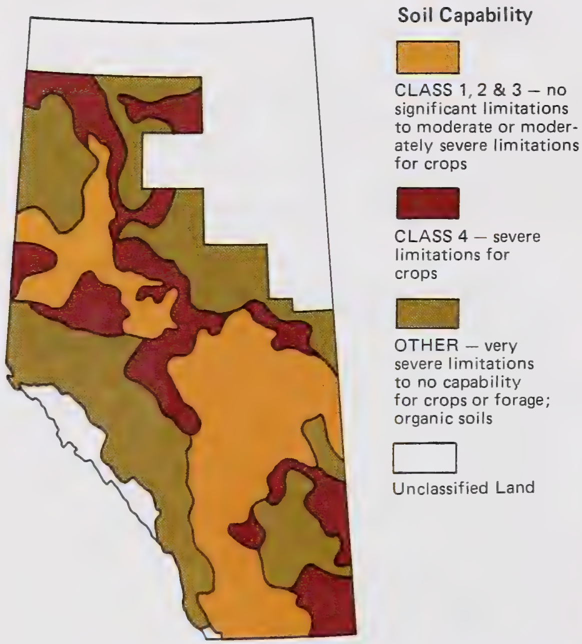
Soil Capability
CLASS 1, 2 & 3 – no significant limitations to moderate or moderately severe limitations for crops
CLASS 4 – severe limitations for crops
OTHER – very severe limitations to no capability for crops or forage; organic soils
Unclassified Land

Figure 3 Soil Capability for Agriculture

Source: Canada Land Inventory Soil Capability for Agriculture Map Series, 1976.

To give some appreciation of the difference in productivity between the various CLI classes, Shields and Ferguson* show the following productivity index:

CLI Class	Prairie Provinces Productivity Index
1	1.00
2	0.85
3	0.70
4	0.50

Thus, though the agricultural land base appeared to be stable from 1976 to 1981, in fact

a) the quality of the land added, principally through Crown land dispositions in the north, did not equal the quality of the land lost, predominantly in the centre and south of the province;

b) the land removals throughout the settled area for non-agricultural purposes contributed to the speculative values that attached to farmland.

Since input costs on poorer quality land are at least as high as on better land, and the productive capacity is less, this would represent a reduction in the ability to maintain a competitive agricultural industry.

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*Shields, J.A. and W.S. Ferguson. 1975. "Land Resources, Production Possibilities and Limitations for Crop Production in the Prairie Provinces." In *Oilseed and Pulse Crops in Western Canada – A Symposium*, ed. J.T. Harapiak, pages 115-156. Calgary: Western Cooperative Fertilizers Ltd. 703 pages.

There will be a demand for the products of Alberta agriculture.

PRODUCTION OF PRINCIPAL FIELD CROPS IN ALBERTA

Millions of Tonnes

	Actual Production 1982	Estimated Demand 2010
Wheat	6.1	13.2
Barley	6.7	15.7
Other Grains	1.6	2.1
Oilseeds	1.0	2.9

In addition to these estimates of demand for field crops will be the demand for red meats, dairy products, and poultry.

The forecasts of demand are based on a fundamental assumption: that Alberta agriculture will remain competitive with agriculture in the other Prairie Provinces and the USA. If Alberta can grow crops as efficiently as these immediate competitors there is an opportunity to expand production to the levels shown in the table at left. However, without the maintenance of the agricultural land base, neither the opportunity to supply the level of demand indicated nor the opportunity to use the equivalent production to develop higher value added products would be fully available.

There are opportunities to increase the productivity of the agricultural land base through many different types of intensification and better management but the rewards to intensification and management are greatest on better land. This advantage should not be wasted or squandered.

Yields have increased in the past on Alberta's farms and they are capable of being expanded in the future through good management, supported by effective research and the ability to transmit research findings effectively to the operator. In addition, intensification (such as irrigation, drainage, or liming of acid soils) is frequently capable of increasing yields substantially. However:

a) though the costs of applying fertilizers, of weed control, and of seed bed preparation are virtually identical on good soil or poor soil, the returns to management are substantially higher on better soils;

b) though different forms of intensification can bring substantial increases in yield there are major differences in the cost of intensification, depending on such elements as location, topography, or soil structure.

In both cases it is prudent to conserve the agricultural land base, particularly good quality soils and those lands where intensification costs are low and potential yields high.

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Ripening Grain

It was pointed out at the public hearings that more productivity was lost through soil degradation than through removals by urban growth and industrial development. The hopeful feature is that almost all forms of degradation can be reversed and the land reclaimed, though at considerable time and cost. However, the avoidance of practices that lead to soil degradation in the first place seems to the Panel to be the preferred approach.

Agriculture has a continuing role to play as a major land use in Alberta.

Properly conducted in its own long-term interests, agriculture is capable of producing a visually and aesthetically pleasing landscape, enhanced soil quality, habitat for upland game birds, waterfowl, and certain types of wildlife; reducing wind and water erosion; and maintaining water quality and streamflow. The conservation of the agricultural land base and its management to achieve continued and enhanced returns on a long-term basis are fully compatible with achieving and maintaining a high-quality environment to be enjoyed by the people of Alberta in perpetuity.

At no time in the public hearings or later were there any suggestions that the conservation of the agricultural land base was not a desirable objective. To most people it seemed only common sense to preserve the basis of a great industry and a great way of life that rears not only high-quality crops but high-quality people.

Where the dispute arose was over the degree of protection that the agricultural land base deserved: whether it should be preserved under almost any circumstance against almost any alternative use, or whether it should only prevail against a few uses.

The Panel has chosen the following criteria to guide it in the appropriate degree of protection warranted, or expansion supported:

The agricultural land base warrants protection:

1) *as the essential support to a major Alberta industry, one capable of substantial and sustained expansion,*
2) *to provide for an internationally competitive agricultural sector capable of sustained commercial viability,*
3) *as a major land user capable of accommodating and enhancing other uses while respecting its own needs.*

The Panel has developed the following recommendations to achieve these objectives.

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RECOMMENDATIONS

Agricultural Resources Conservation Board

Recommendation 1

That an Agricultural Resources Conservation Board be established, reporting to the Minister of Agriculture and charged with responsibility on behalf of the Government of Alberta for the conservation, maintenance, and enhancement of the agricultural land base.

Explanation:

There was comment throughout the public hearings on the lack of a clear and consistent commitment to the preservation of the agricultural land base by the provincial government. There was a concern expressed about the proliferation of agencies dealing with the utilization of land and the lack of co-ordination, monitoring, and assessment of their activities. A single agency charged with responsibility for the stewardship of the agricultural land base on behalf of the province is required.

The Agricultural Resources Conservation Board (ARCB) should be provided, through appropriate legislation, with an advisory, educational, leadership, co-ordinating, and audit role in the following areas:

a) the utilization of agricultural land for non-agricultural purposes;
b) the conservation, management, enhancement, expansion, and utilization of agricultural land;
c) the prevention and control of all forms of soil degradation and the reclamation of degraded soils;
d) the planning of industrial, urban, and government infrastructure that will affect the agricultural land base;
e) economic factors that directly or indirectly affect the ability to carry on agricultural production and measures that relate to matters referred to in clauses (a), (b), (c), and (d);
f) increased public awareness of the importance of soil conservation;
g) trustee and disburser of the Agricultural Productivity Compensation Fund described more fully in Recommendation 5;
h) laws in force in Alberta that relate to, or directly or indirectly affect the agricultural land base;

i) the Board should be required to prepare an annual report to the Legislature outlining its experience in achieving the goals and objectives outlined under clauses (a) to (g).

The Panel visualizes the ARCB as staffed by many of those presently responsible for portions of its mandate in Alberta Agriculture, and provided with the department's current responsibility for Agricultural Service Boards. Local Agricultural Service Boards should look to the ARCB for funding, for support, and for leadership in the maintenance, expansion, and conservation of the agricultural land base.

The Panel believes that there would be merit in providing an Advisory Committee to the ARCB composed of representatives of Agricultural Service Boards. This would provide the ARCB with continuous grass roots input in the identification of problems, suggestions for handling province-wide matters relating to the agricultural land base, and modifications to approaches, policies, and operations that respected local situations.

Responsibility for the Maintenance and Conservation of the Agricultural Land Base

Though there was a frequently expressed desire at the public hearings for clear policy guidance and commitment to the conservation of agricultural land at the provincial level, there was little support for responsibility and regulative authority to reside at that level.

Recommendation 2

That the responsibility for the maintenance of the agricultural land base rest with the rural municipalities of Alberta. The responsibility to protect the agricultural land base should be accompanied by the power and authority necessary to achieve this objective.

Explanation:

Conditions in agriculture and the agricultural land base vary widely from the arid southeast to the frontier north. For agriculture and the agricultural land base there are only a few very basic policies that have province-wide applicability — it requires sensitivity to identify the appropriate action to be taken to preserve the local agricultural land base. Moreover, it is in the best interest of every rural municipality to maintain a strong agricultural industry since it is a major support of the local economy.

The provincial government has recognized the desirability of making the local municipality primarily responsible for the implementation of regional plans and the protection of the agricultural land base. However, having identified the responsibility, it has not provided the full range of powers necessary to fulfill that responsibility.

Three approvals are required to convert land zoned for agriculture in the regional plan to non-agricultural uses:

1) Approval for a Land Use Change — To change from agriculture to non-agriculture.
2) Development Permit — To approve the details of the development of the site.
3) Subdivision Approval — To enable land to be developed in parcels smaller than the normal quarter section used for agricultural purposes.

For a land use change, municipal council is the final permitting authority (after a public hearing) by way of an amendment of the land use bylaw.

For a development permit, a development officer appointed by the municipal council issues the permit and an appeal lies by way of a development appeal board, appointed by municipal council.

For subdivision approval, the approving authority is normally the regional planning commission (with exceptions in the case of some major municipalities and those areas of the province not covered by regional planning commissions), with appeal being to the Alberta Planning Board.

This Panel can see no reason to have two of the three necessary permissions to develop agricultural land completely within municipal hands, while the third, subdivision approval, is referred to other, more distant bodies.

The Panel believes that subdivision approval should be a municipal prerogative, as are the granting of land use changes and development permits, with appeal lying to municipal council as a whole and to the courts.

Some have suggested that local municipalities are not competent to approve subdivisions. The Panel, however, is of the opinion that local decision makers are able to make the best assessment of what is appropriate for their area.

Municipalities should be required to ask for the comments of their Agricultural Service Boards on any land use amendment, development permit, or rural subdivision application that might affect the agricultural land base. However, having obtained that advice, it should become the municipalities' full responsibility, without overriding direction from or appeal to any provincial department or agency, to approve rural subdivision, as it is to issue development permits or to change land use classifications. The Panel assumes that the Regional Plans currently being adopted and their supporting General Municipal Plans would still apply as a framework for development in rural municipalities.

Municipalities should, however, be subject to a regular post audit by the ARCB, which would be required to comment on how effectively rural municipalities had succeeded in maintaining the integrity of their agricultural land base.

With respect to urban annexations, the Panel recommends that a rural municipality that is subject to an urban annexation application have the right to apply to the Local Authorities Board for an Agricultural Impact Assessment (AIA), to be prepared for the lands under annexation application. The cost of the Agricultural Impact Assessment would be paid for by the applicant for annexation, but the rural municipality would award the contract for the preparation of the AIA to standards to be established by the Agricultural Resources Conservation Board.

P.S. Thompson

Competition for the Land Base

Identification of Appropriate Growth Options

The Panel sees the major function of the regional planning commissions as providing for the orderly transition from rural to urban development.

Recommendation 3

In the identification of the appropriate growth options for major roads, utilities, and the expansion through annexation of residential, commercial, and industrial developments, the regional planning commissions should develop benefit/cost analyses of the alternatives that consider not only the cost to the urban centres but the costs to the economy as a whole of the various alternatives for development.

Explanation:

At present the urban planning system provides for expansion along the lines of least resistance (frequently prime farmland in large parcels). The only costs given any explicit consideration are extra costs that may be involved in the provision of services or in developing fragmented parcels. Explicit consideration should also be accorded the impacts on the farming community and the economy of the utilization of farmland in urban development. The Panel realizes that urban development is essential and that frequently no other alternative is available than to use good farmland. However, the decision to utilize good farmland should only be made after all alternatives have been fully examined and the costs and benefits, not just to the urban centre but to the urban and rural communities and the economy as a whole, have been fully considered.

Henderson Photography

Edmonton Expansion

Responsibility for Agricultural Land Use Decisions

In considering municipal responsibility for land use and the agricultural land base, the Panel identified a major anomaly in what we consider to be primarily a land use decision.

Recommendation 4

That the location of feedlots and intensive agricultural operations be a matter of municipal control under land use bylaws.

Explanation:

The certificate of compliance system is now voluntary and provides no statutory protection to the operators. Regulations under the Public Health Act relating to the location of intensive agricultural operations, particularly the arbitrary 1,500-foot limit, are not appropriate criteria for the location of an intensive livestock operation. The control of feedlot location should be at a municipal level where all factors that bear on location of intensive operations could be fully considered.

Compensation for the Loss of Agricultural Land

There are many instances where agricultural land — even good agricultural land — has to be used for non-agricultural purposes. In the Panel's view, that could be justified if:

a) the alternatives and options to the use of agricultural land had been fully canvassed (as provided for in Recommendation 3);
b) if the full loss to the economy, not just the loss to the individual landowner, were fully compensated.

Recommendation 5

The agricultural production lost when land is removed from agriculture should be replaced either by support of agricultural research and development or by practices and programs which would permanently replace the lost production.

Explanation:

When agricultural land is transferred to non-agricultural uses, the owner of the land is fully compensated for his personal loss. However, agricultural land does not benefit the farmer alone. The production of crops and the purchase of supplies and services provide products, income, and employment to many others throughout the economy. When agricultural land is transferred to non-agricultural use, this contribution to the larger provincial economy ceases. Industry and commerce can use land to make even larger contributions to the provincial economy; however, they can do so just as readily on poor quality agricultural land as on highly productive land.

The relative contributions of agricultural production directly to farmers and to all other sectors of the economy have been variously estimated from 9:91 (in the case of highly processed agricultural products) to 35:65 (in the case of export grains). However, the provincial government presently bases its investment in increased productivity in irrigation agriculture on an assumption of a 14:86 primary to secondary economic impact from increased agricultural productivity. The Panel believes that if investments in enhanced agricultural production are warranted at a 1:6 ratio, then an appropriate level of compensation for the *loss* of agricultural production should be at a similar level.

The Panel believes that the existing provincial assessment system for agricultural land provides the best source for establishing agricultural land values. In calculating agricultural land values, the provincial assessment practice is to capitalize the net income capable of being produced by the parcel in agricultural use to establish an agricultural productivity value.

As can be seen from Figure 4, the municipal assessor takes into account soil group, surface, subsoil, texture, topography, stones, trees, and other factors to arrive at an index which rates an individual field as a percent of the most productive agricultural land in the province.

Alberta Gov't Photo Library

R. Sjolie

Variability of the Agricultural Land Base

As the map on the assessment form indicates, this information is provided in great detail for each quarter section of farmland in the province. The assessed value assigned to each field is 65 percent of its agricultural productivity value; that is, the capitalized value of the net agricultural production capable of being obtained from that field. This estimate of productivity is further modified by a location adjustment, which allows for the factors of urban proximity, access, and road proximity, all of which contribute to the net productive value of agricultural land. Information is available, therefore, in great detail on the agricultural productivity value of every parcel and field in the province.

The Panel is impressed by the technical approach of the provincial assessment manual, but is even more persuaded by the fact that the individual parcel owner has the opportunity, once each year, to argue that his land has been inappropriately rated as against his neighbor's or other comparable land in the province.

An amount of six times the agricultural productivity value of land should be contributed to an Agricultural Productivity Compensation Fund. The objective of the Fund would be to replace the agricultural production lost when land is removed from agriculture, by supporting agricultural research and development or practices or programs which would permanently replace the lost agricultural production. The Panel has been impressed with the success of the Farming for the Future program in getting research from the laboratory to a demonstration plot in a farmer's field, and the Agricultural Productivity Compensation Fund should support additional programs along these lines.

With respect to the Agricultural Productivity Compensation Fund, the Panel believes:

a) All transfers of land from agricultural to non-agricultural uses should be subject to contribution to the Agricultural Productivity Compensation Fund. This would include those initiated by all provincial government departments and agencies.
b) That land in the bottom 10 percent of agricultural productivity (as rated by the provincial assessment) should be exempted from contributing to the Fund. It is the Panel's belief that this would provide an incentive to use land of poorer agricultural productivity for non-agricultural purposes.
c) For transportation developments, the principle should be that only those routes off road allowances should be required to contribute.
d) That the contribution to the Fund (six times the value of the land for agricultural production) should be paid by the owner of record after the land loses its agricultural assessment.
e) Temporary withdrawals, such as pipelines, drilling leases, or coal mines should not be required to contribute to the Fund since they will be returned to the agricultural land base at equal or better capability.
f) Though it is not possible to compel federal ministries and agencies to provide an equivalent contribution, every effort should be made to persuade them to contribute on an equitable basis.
g) Municipalities should be responsible for the assessment and collection for the Agricultural Productivity Compensation Fund, on behalf of the Agricultural Resources Conservation Board.

An alternative to contribution to the Agricultural Productivity Compensation Fund would be for those who wish to remove agricultural land from production to provide for an equivalent permanent replacement of production elsewhere, with such production being capable of continuous commercial viability. For such a project to qualify, the level of productivity lost would have to be replaced on land presently cultivated, rather than using our limited expansion potential.

The Panel believes that the Fund would provide a powerful incentive for development and developers to avoid better quality agricultural lands and concentrate on parcels of poorer quality, or lands already withdrawn from the agricultural land base.

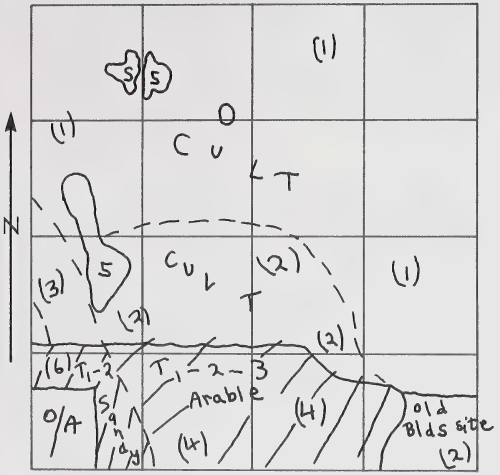
Figure 4 shows the type of information provided on the assessment roll for each agricultural quarter section in the province. In the southwest corner of the quarter is a 4.76-acre parcel not assessed for agriculture. No contribution would be required in this case since it is not part of the agricultural land base. An adjacent field of 5 acres has an agricultural index value of 7, and if it were to be removed from agricultural assessment no contribution to the Fund would be required. If the large 88.33-acre field in the northeast of the quarter, or part of

FARM LAND ASSESSMENT FORM

TOTAL ACRES	
160	

ASSESSABLE ACRES	
155	33

AREA	SOIL GROUP		SURFACE		SUBSOIL		TEXTURE		TOPOGRAPHY		STONES		TREES		MISCELLANEOUS		%	ACRES	V PER ACRE	VALUE	VALUE
1	EL. BK	95	7" +	✓	N	✓	SiLcL	90	U-L	95		✓		✓	Pods INC L. A + ER	90	73	88^{33}	$175.^{20}$	15,475	
2	EL. BK	90	6" +	✓	N	✓	SiLcL	90	UGR	90		✓		✓	ER PODS	95	69	28	$165.^{60}$	4,637	
3	DGR	85	3"5"	90	N	✓	L.S	35	U	95		✓		✓	ER	95	24	4	$57.^{60}$	230	
4	ARABLE	BUSH	40%		No -		2-	Field	→								28	25	$67.^{30}$	1,680	
5																					



					%	ACRES	V PER ACRE	VALUE	VALUE
PASTURE	5) Low SL. Hay Pasture				15	5	36.00	180	
	Flats Seasonal, Fair								
HAY	6) T1-2-3 Sandy - UGR-70.C.C				7	5	16.80	84	
WASTE									
EXEMPT & O/A	HWY	R.R.	ROAD	O/A	Total Farmland Acres				
				4.76 AC	Total Exempt & O/A	4-76	▨		
LOCATION ADJUSTMENT URBAN PROXIMITY X ACCESS & ROAD PROXIMITY					TOTAL		▨	22,286	
1.27 × 1.00							1.27		

REMARKS:

C. OF R.		SUBTOTAL	28,303	
	BASE YEAR MODIFIER	1.169		
	TOTAL LAND VALUE FARM		33,086	
A.A.A.B.	NON-AGRICULTURAL USE			
	TOTAL LAND VALUE			
	BUILDING VALUE			
		FINAL TOTAL	33,090	

DEC 31 1982

DATE

ASSESSOR

Figure 4 Farmland Assessment Form

it, were to be removed from the agricultural assessment roll, it would attract a $2,401 per-acre contribution to the Agricultural Productivity Compensation Fund. If field number 3, of 4 acres and with an index rating of 24 percent, were to move from agricultural to non-agricultural use, it would attract a per-acre contribution of $789.36 to the Fund. The values shown on the sample assessment sheet are assessed values. They are calculated at 65 percent of the actual agricultural productivity value, which in turn is adjusted by 1.27 to allow for the effect of location and by 1.169 to provide for increases in value since the base year.

Accommodating Country Residential Uses

Though they could identify problems for the agricultural community from country residential development, no one at the public hearing was willing to deny people the chance to have a country residence. Provision must therefore be made for country residential uses, but in such a way as to minimize their impact on the agricultural land base.

Recommendation 6

Future additional country residential lots can be accommodated with a minimal impact on the agricultural land base, if the suggested guidelines are followed.

Explanation:

The Panel suggests the following guidelines:

a) The regulations under the Planning Act prohibiting subdivision for country residential use within five miles of a town over 5,000 population and correspondingly lesser distances for smaller municipalities should be dropped. This provision tries to ensure easy and orderly transition to development for urban purposes by maintaining land that is most likely to be required for urban expansion in parcels that are as large as possible. In the past, in the absence of adequate planning of subdivisions, this was no doubt essential. However, through relatively inexpensive preplanning it is possible for lots of typical country residential size to be resubdivided for urban residential development without complex replotting. (This would not be true for industrial and commercial uses.) The development of Joint General Municipal Plans between urban municipalities and the rural areas (as pioneered in the Smoky River Joint General Municipal Plan) is a method of identifying the future direction of commercial and industrial growth and should be encouraged and supported by regional planning commissions and the Department of Municipal Affairs.

The Panel has observed that former Veterans' Land Act (VLA) small farm lots have been successfully incorporated into many Alberta municipalities and today form pleasant urban residential areas.

b) In those instances where urban municipalities have annexed extensive areas of farmland, country residential and large lot residential uses should be encouraged within urban boundaries as an interim use. Again through judicious preplanning, it would be possible to provide for future resubdivision to higher residential densities.

c) The further subdivision of already existing country residential parcels should be encouraged. If the owner of a ten-acre parcel wishes to create two five-acre parcels, or ten one-acre parcels, he should be encouraged to do so.

d) Preferential locations for additional country residential development should be:

   i) Existing parcels less than 20 acres.

   ii) Parcels adjacent to already existing intrusions into agricultural areas such as schools, community halls and facilities, and commercial developments such as stores and service stations. A number of rural hamlets could provide excellent large lots or country residential sites within their boundaries.

   iii) Parcels that are physically isolated from active agriculture by physical features such as coulees, water bodies, etc.

iv) bottom 10 percent of the municipal assessor's farmland assessment roll in locations where development would not interfere with agricultural production.

The Panel believes that the above suggestions illustrate the possibility of providing ample country residential development for those who wish that life style, along with a minimal utilization of and intrusion into, the agricultural land base.

P.S. Thompson

Country Residential Development Near Edmonton

Information on the Costs of Servicing Land Uses

During the public hearings, the Panel heard statements that certain types of uses such as industrial or country residential were beneficial to the municipality because of increased assessments and municipal revenues. They also heard arguments to the contrary — that costs of servicing non-agricultural uses could be costly to the municipality, particularly if the development proceeded only partially, if it were in a difficult-to-service area, or the service requirements were high. Though the Panel made many inquiries, it received no satisfactory answers on the costs of servicing from municipalities or provincial departments.

Recommendation 7

Municipalities should be urged to collect information on the cost of providing services to various types of uses in different areas of the municipality relating to different levels of existing and proposed infrastructure.

Explanation:

Municipalities are presently required to collect information on municipal revenue and expenditures in a standardized format that is comparable throughout the province and across the country. Unfortunately, this information collection system was not devised to provide information that is essential to make appropriate local government management decisions. Although municipalities can precisely identify revenues generated by different types of land use, they cannot identify the costs incurred in providing services to these same areas.

Without a system of cost accounting for municipal management purposes, municipalities are essentially making decisions without a full appreciation of the cost consequences of these decisions. The Panel believes that, though revenues increase substantially when land is removed from agriculture and turned to non-agricultural use, costs associated with the new use may increase more than do revenues.

Unfortunately, evidence to support or refute such a statement is not available, and it should be, to permit effective municipal management.

Soil Conservation

Identification of Areas Subject to Potential Soil Degradation

Through the Agricultural Service Board Act, the existing responsibility for the conservation of the agricultural land base rests with the municipality, though much of the funding originates from Alberta Agriculture. The Panel sees no reason to change that responsibility. However, though Agricultural Service Boards have all the power necessary to respond to conservation disasters or crises, they do not have the ability to be pro-active, to prevent degradation through the identification of sensitive areas, through assisting local soil conservation groups to develop programs, or through the ability to prevent agricultural development when it is clear that it will result in future erosion or soil degradation. The following recommendations are intended to provide for a pro-active role for Agricultural Service Boards.

Recommendation 8

That an agricultural land use classification be developed that identifies the ability of the soil to be continuously utilized for different types of agriculture without major degradation.

Explanation:

Most soil degradation of agricultural land can be traced to some agricultural practice that is not compatible with the soil type, topography, or climatic condition of the area. Land that is particularly subject to soil degradation under cultivation should be identified on a priority basis.

A land classification system might include the following categories:

1) Arable Land
   - *a) Capable of most types of agricultural production.*
   - *b) Capable of being cultivated with forages in rotation and special management practices.*

2) Grazing — *crops should be restricted to grasses or forage crops because of potential erosion or soil degradation problems.*

3) Conservation Cover — *the danger of erosion or soil degradation is so severe that only cover appropriate to the area (grass, brush, trees), with limited grazing, should be permitted.*

The Panel believes that the identification of such land to the public has a great potential to develop awareness of sensitive areas requiring protection for conservation purposes. The affected landowner should also be involved and able to comment on the validity of the proposed classification. The adoption of this type of land use classification should be subject to the same requirements as provided for land use bylaws. The Planning Act sets out a comprehensive form of notification and public and individual owner input, both in the enactment of the initial land use bylaw and amendments thereto. This should be paralleled in the adoption of an agricultural land use classification.

J. Hermans

Topsoil Eroded By Wind

Soil Reclamation Districts

The Panel was impressed with the enthusiasm, dedication, and ability of various informal conservation groups developed to deal with local problems. It believes that their authority and ability could be strengthened without diluting their great strength, their local knowledge of the problem and the people. The Panel therefore recommends:

Recommendation 9

That there be provision for the establishment of "Soil Reclamation Districts" whereby two-thirds of the landowners within defined boundaries may determine the remedies necessary to arrest soil degradation and/or reclaim lands presently subject to degradation. Within Soil Reclamation Districts, constant dollar or low-interest loan funding should be available to help carry out remedial measures, with repayment to be compatible with benefits derived.

Explanation:

Soil degradation by wind, water, and cultural practices is an important factor presently reducing the productivity of the agricultural land base, and potentially can become a major factor in Alberta's ability to maintain or expand agricultural production.

Most soil degradation can in one way or another be traced to farming practices and is localized in nature. Therefore the problems should be resolved locally, based on the will of a substantial majority.

Assistance in the development of soil reclamation districts should be provided by way of constant dollar or low-interest loans which could, when costs are particularly high, be forgivable in whole or part. It is the Panel's belief that, in most instances, the benefits to be achieved from soil reclamation would be sufficient to repay constant dollars or low-interest loans.

The establishment of a soil reclamation district, the development of a reclamation plan, and the approval of loan amounts and repayment requirements would be subject to approval of the local Agricultural Service Board, with provision for appeal to the municipal council.

Rural Replotting Schemes

Soil conservation will often require longer term changes in land use in addition to works, projects, or programs that seek to rectify problems of erosion or degradation. In some instances, these might be accomplished by permanent exchanges of land, with some patented land reverting to the Crown and some Crown land going into private ownership. Such actions are presently underway in the Special Areas and, if handled with care, could result in a permanent improvement to land use patterns. However, this process would be assisted by breaking away from the rigid range-township-section form of parcelation to provide for property lines that, for example, followed the top of river breaks or excluded coulees and sand hills.

The ability to replot should be available to Soil Reclamation Districts as a tool to achieve long-term soil conservation objectives. Since it could also be useful to rural municipalities in other land use situations, the authority for replotting should be provided to rural municipal councils as it presently is to urban councils. Rural municipalities could then undertake replotting on behalf of Soil Reclamation Districts, as well as on their own initiative, when necessary.

Recommendation 10

That the Planning Act and Regulations be amended to provide for the implementation of rural replotting schemes.

Explanation:

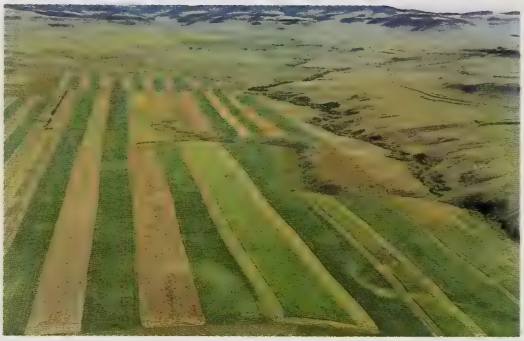
Many situations could be assisted by replotting property boundaries to be more compatible with topography, drainage, soil condition and physical features such as rivers, railways, etc. Certain lands are so subject to erosion or degradation that they should not be used for agriculture. Under these circumstances the most equitable solution would be to enable these lands to be exchanged or purchased by the government for permanent environmental reserves. In addition, replotting would enable rural municipalities and the provincial government:

a) To reorganize land ownership and road systems within drainage districts, so as to reduce the necessity for drainage structures and to reduce erosion.

b) To create special parcels in recharge and saline seep areas.

c) To facilitate surface water management and retention programs to encourage and enhance water supply, control erosion, and create wildlife habitat.

d) To reorganize areas where there are public lands suitable for cultivation and private lands that should be planted to grass or conservation cover in perpetuity.



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Agriculture and the Natural Landscape

Summerfallow Incentives

Other major impediments to effective soil conservation lie beyond the ability of the rural municipality to change. These relate particularly to federal and provincial programs that provide an incentive to summerfallow. Summerfallowing has been identified as a practice which hastens the loss of organic matter and nitrogen in Prairie soils, has been implicated in the spread of dryland salinization, and leaves soils more susceptible to wind and water erosion. It is clear that this old established Prairie farm management practice should be reduced as much as possible.

Canadian Wheat Board — In the short term, there is a clear economic penalty to the elimination of summerfallowing, particularly when it may take up to five years to accumulate sufficient organic matter through continuous cropping to compensate for the reduction of yields. It was brought to the Panel's attention at the public hearings that the way in which the Wheat Board quotas were established still, in spite of substantial improvement, provides an incentive to summerfallowing and to the breaking of marginal land that should remain in pasture.

Recommendation 11

This Panel supports the recommendation in the report on soil conservation by the Standing Committee on Agriculture, Fisheries, and Forestry, to the Senate of Canada, reading*

> *That the Canadian Wheat Board modify the quota system to extend (a) full quota entitlement, at the "bonused" level of seeded acreage, to those remnant farmlands considered of marginal value for agriculture; and (b) partial quota entitlement, equivalent to current quota levels for summerfallow, to extensive tracts of unimproved pastureland which form integral parts of farm units. [p. 12]*

Explanation:

The Panel believes that this recommendation could lead to better use of the Prairie soils and urges the provincial government to fully support this recommendation.

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*Standing Committee on Agriculture, Fisheries, and Forestry. 1984. *Soil At Risk: Canada's Eroding Future.* Hon. H.O. Sparrow, Chairman. 129 pages.

Canada-Alberta Crop Insurance Program — The crop insurance program also provides an incentive to continue summerfallowing. On average, crops seeded on stubble have lower yields than those seeded on summerfallow, though there has been a tendency for these yields to converge recently (see Figure 5). Therefore, crop insurance coverage for farmers who plant on stubble is not as high, nor will payments be as large or start as early in case of a crop failure. A good farm manager who plants on stubble and provides the necessary inputs can often achieve yields that rival those on summerfallow, though at higher input costs. Unfortunately, because statistics for yields on stubble are distorted by those who plant without the necessary inputs, he is penalized two ways. He faces higher input costs to achieve his higher yields and, in case of a crop failure, would collect less from crop insurance. It is possible to establish an individual risk assessment for crop insurance purposes which can partially overcome this problem. However, the farmer planting on stubble who experiences widespread crop failure early in the individual program would be faced with excessively high premiums.

Recommendation 12

The Panel believes that the method of calculating coverage and payouts should be neutral as between planting on summerfallow or stubble. Since there are many technical details and complications in achieving this objective, the Panel calls on the Canada-Alberta Crop Insurance Corporation to give this matter their urgent consideration.

Explanation:

It is undesirable for a government-assisted program to be supportive of farming practices that are harmful to soil quality over the long term.

Prevention of Erosion and Soil Degradation

In pre-metric days, it was said that an ounce of prevention was worth a pound of cure. This principle still applies, but is now referred to as being "pro-active"; that is, to assess alternatives before action is taken. The Panel believes that many land use decisions that could lead to major problems of erosion and soil degradation would be avoided if the following recommendation were adopted.

Recommendation 13

An agricultural development permit, issued by the Agricultural Service Board, should be required to clear or break land. Permits could identify special conditions under which clearing or breaking should take place.

Explanation:

Certain areas presently under tree cover or in pasture should remain that way for the long-term maintenance of the agricultural land base. The local Agricultural Service Board, supported by the information available from the proposed land classification system, should be in a position to assess whether the long-term impact of clearing or breaking land would be sufficiently detrimental to warrant the refusal of a permit to clear or break, or to establish special conditions under which clearing or breaking should take place.

A right of appeal to the municipal council and the courts should be provided for those instances where permits are refused or issued with conditions unsatisfactory to the applicant.

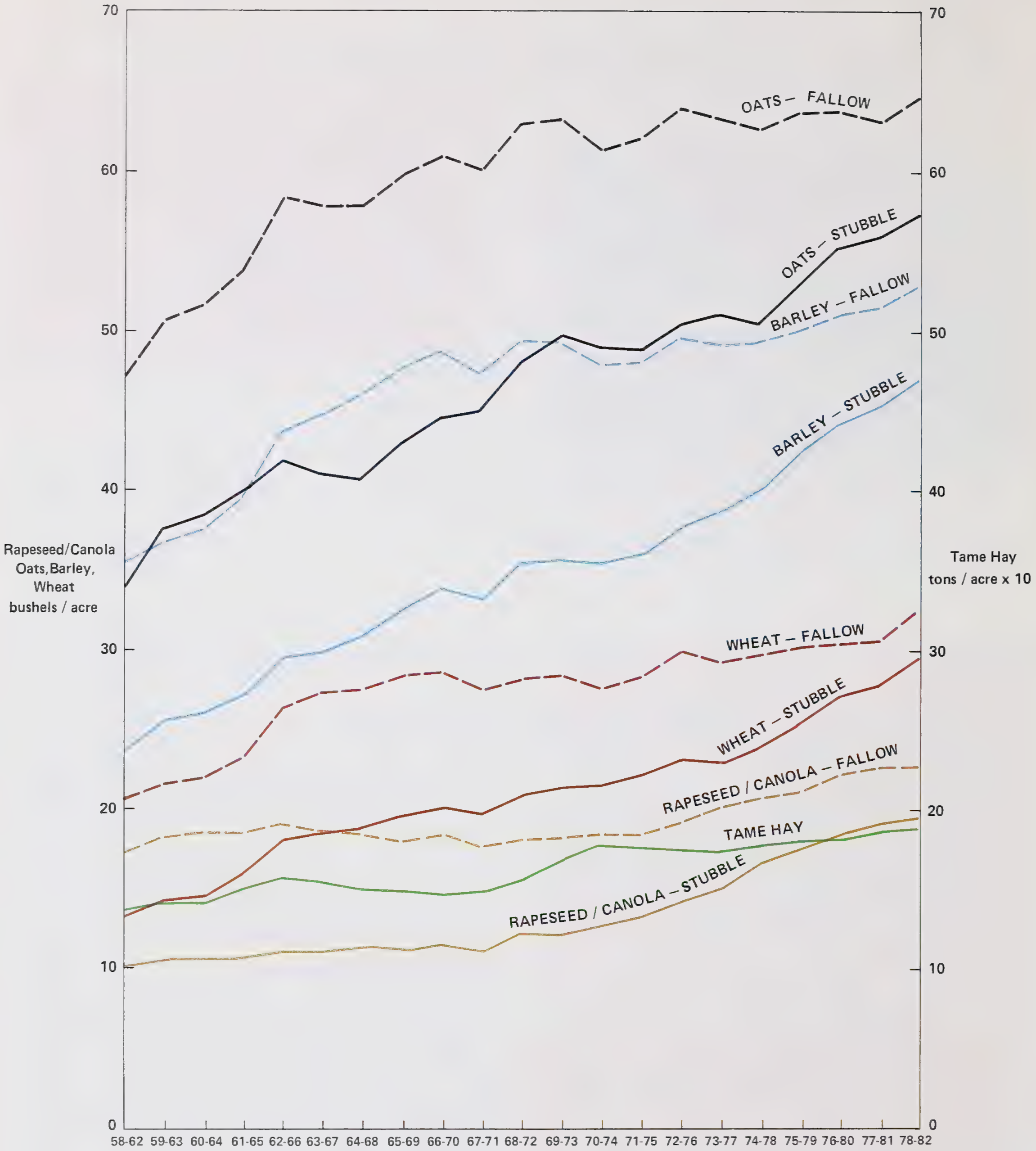

Figure 5 **Yields Per Seeded Acre, Alberta 1958-1982**

By 5-year moving averages

Source: data from several Alberta Agriculture publications: *A Historical Series of Agricultural Statistics for Alberta,* 1969; *Statistics of Agriculture for Alberta,* 1966-67 to 1969-70 inclusive; *Agriculture Statistics Yearbook,* 1972 to 1982 inclusive.

Oil and gas developments are major users of agricultural lands. Fortunately, under normal circumstances these are temporary uses which allow for the reclamation of agricultural land to equal or better capability at the termination of the use. During the hearings, there were congratulations for the way in which reclamation was handled in the Green Zone. In the Green Zone, the Forest Service is responsible for identifying the standard and manner of reclamation, and because foresters know both the land base they are responsible for and the best approaches to reclamation, the results are normally satisfactory. Similar results were obtained on the very large projects (regulated surface disturbances) that occur on private land with the Land Reclamation Division of Alberta Environment directly responsible (coal mines, large diameter pipelines, heavy oil developments). Problems arose when the private landowner was directly responsible for negotiating with the developer for small diameter pipe and flow lines and standard oil and gas leases.

The Farmers' Advocate and the Surface Rights Board support appropriate compensation for disturbances. However, the private landowner has no readily accessible, independent source of locally knowledgeable advice on what levels of reclamation can be achieved, or how disturbance to soil quality can be minimized through the preparation of simple development and reclamation plans.

Recommendation 14

That the rural municipality be given the responsibility for reclamation not dealt with under the Land Surface Conservation and Reclamation Act's regulated surface disturbances provisions. This proposal is not intended to replace direct negotiation between the applicant and the landowner for right of entry.

Explanation:

A development officer in a rural municipality has the power to issue a development permit, based on submitted plans and specifications, before development is allowed to proceed. This is to insure that the development will comply with the building codes, land use bylaw and other bylaws of the municipality, and if there are any discretionary elements, that they are satisfactory. The system next requires inspection during development and, when development is complete, some form of certificate of compliance.

When land in a rural municipality is subject to disturbance and is required to be eventually restored to its original condition, the municipal inspection and reclamation officer should have a role similar to that of the development officer, based on a concept similar to the development permit system; namely:

a) That a development and reclamation plan setting out the purpose, location, and type of disturbance, together with a description of handling the land, inclusive of replacing the disturbed soil, be submitted
   i) for pipeline rights-of-way, exploration sites, and those parts of the original sites not required after production commences, and
   ii) for production sites after production ceases and the site is to be permanently abandoned;
b) a development and reclamation approval would be issued to the applicant when the plan was deemed acceptable, in accordance with the requirements of the Land Surface Conservation and Reclamation Act and any local regulations approved by the Land Conservation and Reclamation Council;
c) the applicant for the reclamation certificate would be bonded during the term the reclamation certificate was outstanding for (a) (i) above;
d) periodic inspections would be carried out during the period when the disturbance occurred to insure that the reclamation plan was being adhered to;
e) the permit fee collected by the municipality would be based on the costs to process the plan, test soils, and conduct periodic and final inspections;
f) the reclamation certificate would certify that the impact of the disturbance had been mitigated as much as possible.

During the public hearings, the present centralized system was claimed to be too complicated, slow to respond, and not capable of looking after specific local concerns. The proposed system would provide the landowner with direct local access to a person who would be knowledgeable about the procedures. Rural development officers should have access to study courses and seminars to insure that high-quality administration would occur.

Appeals of decisions of the development and reclamation officer to the Municipal Council and the courts should be available to both the applicant and the landowner.

Senior Government Support for Soil Conservation

The preceding recommendations are based on the Panel's belief that the responsibility for the maintenance, conservation, and rehabilitation of the agricultural land base should be primarily a local responsibility. As a local responsibility, it should be supported by the powers necessary for the responsibility to be carried out, and by funding sources that do not place an excessive burden on local resources. However, some programs are impossible to mount at the local level, though they are supportive, indeed, essential for successful local soil conservation.

Markets for Beef — Grasses and forages play an important role in conservation of the soil. Certain soils should remain under grass, since cultivation would lead to rapid degradation. Alfalfa is a major treatment for removing excess moisture from recharge areas, certain drainage channels should remain permanently in grass, and forages should often be inserted in a rotation to maintain tilth and restore organic matter. However, it is not enough to identify the important role that grasses and forages play in the maintenance or restoration of the health of the soil. There has to be some way for the farmer to use these crops at some profit to himself. The classical method of using grass and forages was through the production of ruminants; that is, sheep and cattle. Alberta has been fortunate to have had an important sheep and cattle industry in the past. However, in spite of very generous levels of support from the province, the number of sheep has exhibited a continuing substantial decline. For dairy cattle, the dairy industry has accepted supply management marketing arrangements that have provided income support in exchange for growth rates limited to the population growth rate of the province.

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Beef Cattle on Prairie Grasslands

The Alberta beef cattle industry has resisted the establishment of supply management marketing boards, preferring to compete nationally and internationally in a free market. This is fortunate since it does not limit the expansion of the beef industry, which therefore has the ability to become a growing market for the grasses and forages essential for effective soil conservation programs. However, after avoiding the pitfall of supply management, the Alberta cattle industry has been barred from some of its normal markets by support programs instituted by other governments.

Recommendation 15

That the Government of Alberta work toward the removal of all inter-governmental barriers to free trade in beef, whether at the feeder cattle or finished stage. Particular attention should be paid to indirect barriers, including excessive levels of subsidy to develop beef cattle industries.

If, after fully canvassing the potential for free trade in beef at the provincial, national, and international level, the conclusion on potential expansion is negative, the Government of Alberta should institute special beef marketing programs. These might include special transportation assistance to market beef in new market areas, additional research on new forms of beef products, packaging, processing, transportation, and storage, and continuing follow-up and reassessment of existing programs and initiatives.

Explanation:

The direction of markets in the past and for the future favors grain production over cattle production in Alberta. This tendency has been artificially tilted in favor of grain production through government subsidies to export grain (for example, the Crow rate). However, the cattle industry in Alberta is not only an important agricultural sector in its own right, deserving of support to the same extent as export grain farming (as was exemplified by the Alberta government's support of the Gilson report* and of transport subsidies paid directly to farmers) but has a critical role to play in the maintenance of the productivity of the soils of Alberta. In essence, the presence of a viable cattle industry has enabled Alberta to retain areas of grass to the benefit of the long-term quality of agricultural soils. The recommendation is intended to recognize the importance of grassland and forage crops in maintaining soil quality and productivity and as one of the important tools to restore the productivity of degraded land.

Markets for Grasses and Forages — Though beef cattle are the principle way in which grasses and forages can be marketed, they are not the only way. There are already important industries producing alfalfa pellets ("dehy") and grass and forage seeds. Since these products represent another way in which important soil amendments can be economically included in a crop rotation, special support in their marketing is also warranted.

Recommendation 16

Export marketing of grass and forage products should involve product-oriented task groups representing each element in the chain from producer to consumer.

Explanation:

The marketing task group would bring together for a specific product representatives of each of the major stages from producer to consumer. For example, for a product such as sweet clover seed, the resources might consist of:

a) Marketer — someone with contacts in world markets who could identify which countries use sweet clover seed, in what amounts, for what purposes; their special requirements as to germination rate, cleanliness, packaging, and other factors.

b) Alberta Agriculture — to identify the areas which could grow sweet clover most effectively and to establish management practices for sweet clover, for example, for seed bed preparation, fertilization, chemical treatments, harvesting techniques, equipment required, and so on.

c) Researcher — to develop varieties to meet market requirements and improve yields, or to develop or modify management practices and equipment.

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*Gilson, J.C. 1982. *Western Grain Transportation: Report on Consultations and Recommendations.* Transport Canada. Various pagination.

d) Packaging and Transportation — if there are any special requirements for storage, packaging, and transportation, a packaging and transport specialist might be required on the task group or could be brought in as necessary.

e) Manufacturing — if the product were one that went through a manufacturing process, a representative of the manufacturer should be present to speak to questions of standards, quality control, volumes, and profit margins.

f) Farmer — representatives of farmers who were interested in growing the crop, probably on a contract basis. They would provide insights on the problem of actually growing the crop with existing or adapted equipment.

g) Extension Services Branch, Alberta Agriculture — would be responsible for interesting a sufficient number of farmers in growing the crop so that there would be enough product to demonstrate to potential customers the qualities and special characteristics of Alberta sweet clover seed.

The first step for the marketing task group would be the identification of a product that seemed to have some demand in world markets and can be grown in Alberta. Sweet clover has been used in the illustration. It is intended as an example and not as a suggestion, though this product might well be worth further examination, since Alberta grows only about one-tenth of the sweet clover seed produced in Manitoba. The advice of those knowledgeable in the market would be critical in identifying potential target products.

The marketing task group would be a mixed government-private group. A principle function would be to try to bring government programs, knowledge, and services to the service of the private sector in marketing, manufacturing, transporting, or growing. The government commitment should be for only a limited time period.

Funding for such market development projects might initially be developed under the Farming for the Future program, since this program would be experimental and developmental.

A similar approach could be applied to other specialty crops that may have a role as soil amendments, and could be introduced into prairie grain rotations (such as pulse crops).

The approach proposed is modelled after the situation which has developed naturally in Manitoba. It appears unlikely to develop spontaneously in Alberta, yet it could be an important element in agricultural development.

Clockwise from center:

Cattle Shipment to Korea
Canola Crushing Plant
Forage Research
Alfalfa Processing Plant
Alberta Grain Processing Industry
Alberta Farmers

Alberta Gov't Photo Library

Research

Nothing achieved more universal support at the public hearings than agricultural research. One hundred briefs identified priority areas for research, better ways to achieve research goals, and the need to strengthen the research sector. Not one brief opposed further research, identified it as a waste of time and money, or suggested it be scaled back. There was the occasional comment suggesting it could be made more relevant, or that results could be transmitted more quickly or clearly, but these suggestions were intended to improve the delivery of research, not scale it down or restrict it.

The Panel agrees with the need for additional support for agricultural research because of the high economic returns that investment in agricultural research can bring. It is expected that, over time, the Agricultural Productivity Compensation Fund will grow sufficiently to make a major contribution, not just to replace the production from land transferred to non-agricultural use, but to enhance productivity on the remaining land base.

The Panel was also impressed with the praise that was directed to the research activities supported by Farming for the Future (FFF). Particular attention was directed to the success of the demonstration projects, which brought the results of research to the working farmer and his neighbors. The methods by which FFF evaluates and priorizes research proposals, the input received from the farming community, and the practical results were all commended.

The Panel feels that the establishment of additional or alternate institutions to manage agricultural research funds is not warranted. Moneys to be applied to agricultural research from the Agricultural Productivity Compensation Fund should be directed to FFF for distribution.

However, the Panel has identified some areas where research specific to problems of the agricultural land base is required.

Soil Research

Recommendation 17

That research be carried out to provide more information on the maintenance of and amendments to Alberta agricultural soils.

Explanation:

Alberta has a large block of agricultural land further north than any other significant agriculture in North America. Erosion, particularly from water, is different here because of soil differences (for example, slow percolation) and snow runoff. Most soil erosion information is developed in the USA, and is therefore not totally applicable in Canada. Wetlands, wet land, and acidic and solodic soils are all found in Alberta and in some cases amendments could increase production significantly, but technical and management information is needed.

Soils Branch, Alberta Agriculture

Soil Erosion in Peace River Country

Effects of Industrial Development on Soils

Recommendation 18

That a research fund be established to study soil reclamation and effects of industry on agriculture. This fund could be developed by contributions from industry, matched by government.

Explanation:

Many questions have arisen regarding the effects of industrial emissions and the effects of chemical or product spills on agricultural land. While some research has been carried out, more and longer term testing is required, focused on agricultural land productivity.

Long-Term Effects of Agricultural Chemicals

Recommendation 19

Research should be carried out on an ongoing basis to study the long-term effects of agricultural chemicals on soils.

Explanation:

While testing of agricultural chemicals is quite extensive before a product can be licensed, there is concern about the long-term effects of some products which are persistent.

Production Research

Recommendation 20

More funding for production research should be provided, and there should be a closer liaison between provincial and federal research institutions. Producers should be encouraged to contribute to research funding through a levy on sales of production.

Explanation:

Excellence in agricultural production is important. Production research such as the development of new varieties, crops, and production techniques, is necessary for Alberta to maintain or improve its competitive position in world agriculture.

There are some potentials, such as nitrogen-fixing wheat or perennial wheat, which could have significant effects on costs of production.

Estimates suggest that agricultural research investment has a return between 30 and 40 percent per year.

Producer involvement in the research programs by way of check-offs can improve researcher-producer communication with benefit to both.

Since our agriculture must compete on a world market, it should be supported by research institutions, facilities, and researchers of world class. There is also a potential spinoff since world-class research helps open markets for Alberta equipment, services, consultants, livestock, and products.

Grass and Forage Research

Recommendation 21

More research into grass and forage production is required, particularly into methods of increasing yields per acre.

Explanation:

There have been major advances in methods of harvesting, storing, and distributing grasses and forages through mechanization and ensilaging methods. However, the yield per acre has remained relatively static, certainly as compared to yield increases in the grains and oilseeds over the last two decades (see Figure 5). The Panel believes that there is as much potential to increase yields of grasses and legumes as there is with grains and oilseeds, if research were to be focused on this neglected area. The potential of native species, which are already adapted to Alberta conditions, should be examined.

This research is of particular importance because of the contribution that grasses and legumes can make to the conservation of the agricultural land base. An increase in yield would make their utilization more attractive.

Local Research Liaison

Recommendation 22

That Agricultural Service Boards be encouraged to act as a practical research liaison within their jurisdiction in determining local research needs and in planning and managing projects.

Explanation:

The local Agricultural Service Board knows its area and the people in it. By determining local research needs, and then initiating a project, the Service Board will serve an extension role as well as a research role.

Impact of Government Assistance Programs on Agriculture

Recommendation 23

That a research project be instituted to identify the full range of benefits and costs of various government incentive and subsidy programs on the sectors of the agricultural economy that they were intended to assist, as well as on other parts of agriculture and the larger economy.

Explanation:

At present no one knows for certain how government assistance programs affect agricultural operations of various sizes and types. For example, has the grazing reserve program helped small farmers more than large ranchers, or vice versa? It would be useful for improving the quality and impact of existing government programs to have a better understanding of the differential impact of these programs on a more detailed basis. The information gathered could improve the quality and delivery of future government programs.

Expansion and Intensification

Many types of expansion and intensification were recommended to the Panel as appropriate ways to expand or increase the productivity of the agricultural land base. The Panel is aware that, as part of Alberta Agriculture's Land Base Study, each of the proposed methods of expansion and intensification will be examined.

The Panel is in no position to comment on each of the proposed types of expansion in advance of the completion of the study and the wealth of information it will make available. However, it can identify guidelines by which the various alternatives should be assessed and priorized.

Recommendation 24

Provincial programs of expansion and intensification should be assessed and priorized on the basis of the following guidelines.

Explanation:

1) Assistance should be provided on a one-time basis either:
   a) In the form of capital assistance, or
   b) As "start up" money for a limited period of time.
2) Information should be developed to provide:
   a) An estimate of the potential net return to the farmer.
   b) The total cost to government to provide assistance. This would include financial implications to all departments as well as increased provincial grants to boards or municipalities.
3) The impact of the development proposed on long-term soil quality and on the environment should be fully assessed. No development should be supported unless it can be shown that it is capable of maintaining soil and environmental quality over the long term.
4) The various forms of expansion and intensification should be ranked from those that provide the greatest net return to the farmer, with the least expenditure of provincial funds, to those with the least return for the most expenditure.
5) Assistance should be provided to all forms of expansion or intensification on the basis of their net returns (as calculated in (4) above) at the same level and on a uniform basis. There is no reason to favor irrigation over drainage or liming over land clearing. If support were provided at a standard level on the basis of the net returns expected to be achieved, an equitable, non-biased, and non-distorting result would be achieved.
6) If the adopted assistance level is 86:14 the total assistance provided should be no greater than six times the capitalized value of the increment in net productive value that can be ascribed to the expansion or intensification project.
7) All primary production projects that can be shown to provide a positive net return on a continuing basis, with no provincial contribution to operation and maintenance costs, are worthy of support. The priority for support should be guided by the ranking of expansion and intensification projects outlined in (4) above.

Provincial support for expansion and intensification is warranted because of the direct and indirect impacts on the provincial economy from increased production. The amount of investment in each form of expansion and intensification should be guided by the potential returns from the investment. Those types of expansion or intensification that are lower in cost and higher in return should be favored.

The total amounts of provincial investment in intensification and expansion should be based on the potential for positive net returns. As long as the investment is productive, it is warranted and the costs would be capable of being paid for out of the enhanced production, employment, and income generated by the investment.

The various types of expansion and intensification being examined in the Agricultural Land Base Study are listed at right.

All of these forms of expansion or intensification have their place in the future of agriculture in Alberta. However, each of them should only be supported when it can be demonstrated that future long-term impacts on soil quality and the environment will be benign. The need, 25 years from now, for additional programs to reverse erosion, flash flooding, or additional salinization, traceable to inappropriate expansion or intensification, must be avoided.

Woodland Conversion
Summerfallow Reduction
Prairie and Woodland Range Improvements
Irrigation Expansion
Range Conversion
Reclamation of Salinized Land
Expansion onto Green Area Lands
Drainage
Flood Control
Liming Acid Soils
Deep Plowing Solenetzic Soils

Northern Expansion

Because the Panel heard so many views specifically on the potential and problems of northern expansion, it felt it necessary to comment on the specific situation with respect to northern expansion in addition to the general approaches to expansion and intensification contained in Recommendation 24.

Recommendation 25

That northern agricultural land base expansion be limited to the fringes of existing agricultural settlements until more is known about potential expansion areas.

Explanation:

Much was heard about the pros and cons of northern expansion during the public hearings. However, the best evidence available indicates that a great deal of damage can occur to the drainage system, wildlife habitat, and forestry potential, all at a good deal of public expense with little or no real return on the investment required to permit agricultural expansion. The long-term economic viability of an agricultural industry in the north will require more information about such factors as:

a) opportunities for off-farm employment;
b) a land allocation and road access system that would be more compatible with the topography, drainage systems, land use, and wildlife. A commercial trapping industry would still be viable within an agricultural community if the planning and subdivision of land uses is done carefully and not kept to a predetermined and rigid system of survey as required presently.
c) long-term best use (that is, forestry, agriculture, wildlife habitat, and so on);
d) potential erosion problems due to development;
e) climate;
f) economics;
g) long-term value of aspen forests;
h) predator control.

J. Lore

Cleared Land Near Fort Vermilion

Range Management Agreements

Many of the ranchers who appeared before the Panel indicated concern for security of tenure on their grazing leases, noting that the lease term (5-10 years) is too short to plan in the cattle business. Though they agreed that sale of Crown land to the rancher would supply full security of tenure, if there were open bidding the land might accrue to those who had speculative uses in mind, or those who were fortunate enough to be in a liquid position at the time of the sale.

For many ranchers existing arrangements are quite satisfactory. These are usually leases distant from urban centres and from demands for hunting, fishing, and recreational uses. However, for many ranchers in the southern foothills there is a very real need for security of tenure so that they can look forward with confidence to being in ranching sufficiently long to warrant improvements that they might make to their Crown leases and associated patented land. At the same time, hunters, fishermen, and recreationists were concerned that access to Crown leases might be restricted. They were concerned that a minority of irresponsible recreationists might so interfere with range management that excessive restraints might be placed on all.

Range Management Agreements patterned after Forest Management Agreements would be helpful to both parties.

Recommendation 26

A Range Management Agreement should have a 20-year term renewable in the tenth year. Any increment of grazing capacity that was due to good management by the leasee, or range improvements carried out at the leasee's cost, should accrue to the leasee, even if this were to exceed the existing 600 animal unit limitation on size.

Explanation:

In return for this long-term tenure, the rancher would have to undertake certain actions. For example, certain trails might be maintained for recreationists, or snowmobiling might be permitted in certain locations between certain dates. A Range Management Plan, which would be part of the Agreement, could be developed as part of an Integrated Management Plan, being prepared for areas subject to high multiple use pressure, though the Range Management Plan need not await the completion of the IMP process.

Alberta Gov't Photo Library

Agriculture in the Green Zone

If there were additional costs associated with implementing the Range Management Plan, the Range Management Agreement might set out methods of calculating fees that would compensate for the additional costs involved.

There should be no compulsion to adopt a Range Management Agreement. It should be an option available to ranchers in areas subject to high and increasing pressure from other users that would provide for long-term security of tenure, and, in certain instances, stable lease fees, in return for the leasee undertaking to provide certain services to other users.

Range Management Agreements could also be utilized in instances where the leaseholder wished to undertake improvements to Crown land at his own expense.

Grazing Reserves

Another approach to the expansion of agriculture on public land is provided by grazing reserves. The experience in providing for expansion of grazing land by means of the development of grazing reserves has indicated that the continued cost of operation and maintenance has not been met.

Recommendation 27

> *Grazing reserve expansion should be restricted to those cases where a grazing association indicates its willingness to undertake all costs of maintenance and operation. The responsibility for maintenance and operation of existing reserves should be turned over to local grazing associations as quickly as possible.*

Explanation:

Grazing reserves have not only received government assistance for the capital cost of clearing and development but have been supported for a large portion of maintenance and operating costs. If grazing fees cannot cover the ongoing costs of maintenance and operation, it indicates that the method of operation is not realistic or practical and should be abandoned.

Future investments in the development of grazing land should be restricted to those parcels where it can be shown that grazing fees and charges would be sufficient to meet all maintenance and operating costs, and where a grazing association indicates its willingness to assume all management responsibilities for the area following development.

The Panel believes that the expansion of markets for beef, the reduction of costs through research on increasing grass and forage yields, and the utilization of sensitive lands within existing farming areas for grass and forage would be more effective supports to the ranching industry and the agricultural land base than the expansion of grazing reserves on the present basis.

C. Taylor

Grazing Reserve

Annexation

There was widespread unfavorable comment at the public hearings about the decision to annex large areas of prime agricultural land to the city of Edmonton. The agricultural lands annexed to the city of Edmonton would be able to be productively used for agriculture for a long period if the following recommendation were adopted.

Recommendation 28

That all land and buildings used for primary food production that are annexed to an urban municipality be treated for assessment purposes as though they had remained in the rural municipal jurisdiction, accompanied by municipal service levels similar to those of the rural municipality, until these lands are converted to a use other than agriculture.

Explanation:

The Local Authorities Board attempts to give annexed land protection for a period of time by ordering that the land shall be assessed for agricultural purposes for a number of years or until converted to another use.

This recommendation would insure that annexed agricultural lands would continue to receive the same treatment as if not annexed and therefore would be encouraged to remain in agricultural production, at the choice of the owner, as long as possible.

Greenhouse Production

As part of its terms of reference, the Panel was asked to examine the use of greenhouse production as a means of expanding the productivity of the agricultural land base. Though the greenhouse industry has an important contribution to make to the agricultural economy, its major role is to provide a high-quality substitute for vegetables and flowers that would otherwise be imported into Alberta.

According to spokesmen for the industry, the major costs and major locational factors were cheap energy and abundant low-cost labor. Each acre of greenhouse space employs about eight people. Greenhouses are located in southern Alberta partly because of milder winter climates, but more importantly because of low energy costs available at the time of their establishment, in locations like Redcliff and Medicine Hat. With the attraction of waste energy in locations like Joffre (petrochemical) and Empress (pipeline compressor station), they have spread further afield.

Novacor Chemicals Ltd.

Noval Enterprises Greenhouse Near Joffre

The Panel does not believe that greenhouse production can be relied on as a means of expanding Alberta's agricultural land base since whether utilizing primary energy (such as natural gas), or waste energy, both sources are non-renewable and will become unavailable when they will be most required. However, because the greenhouse industry is an important one and should be treated like any other agricultural sector, it is recommended:

Recommendation 29

That greenhouse buildings and land be assessed as agricultural for municipal tax purposes.

Explanation:

At present greenhouses located in rural municipalities are assessed as agricultural land. But if located in an urban municipality, they are not only assessed for land and buildings, but may be subject to a commercial mill rate and business tax.

Quite often a greenhouse does not locate within an urban boundary by choice but rather as a result of annexation. This type of assessment and tax treatment is a significant disincentive to the proper growth of the greenhouse industry. Since greenhouses require an extensive labor force, it is often desirable that they locate within urban boundaries, often on a site served by public transportation or with easy access for a labor force. Agricultural exemptions should apply within a city even if the parcel is less than 20 acres, since the agricultural production of greenhouses is so high.

Conclusion

A number of other points were brought up at the public hearings. Agriculture is a extremely complex industry with aspects ranging from the strictly physical to agriculture as a way of life. The Panel has restricted itself to comment on what it believes are major aspects of the maintenance and expansion of the agricultural land base, or to topics on which it was specifically requested to comment. It believes that if the recommendations presented are considered and adopted, agriculture can continue to be a viable contributor to the economic life of Alberta long after our non-renewable energy resources are gone.

The Panel sees clear divisions of responsibility for the protection and conservation of the agricultural land base. The province would be responsible for leadership, co-ordination, monitoring, and education through the establishment and support of the Agricultural Resources Conservation Board. It also would provide broad support to the principle of maintenance of the agricultural land base by requiring contributions to the Agricultural Productivity Compensation Fund whenever land was removed from production, as indicated by its removal from the agriculture assessment rolls.

In addition, the Province would show its support for the principle of land conservation by having its departments and agencies contribute to the Fund whenever they took agricultural land out of production.

The rural municipalities would be responsible for the detailed implementation of mechanisms to maintain and conserve the agricultural land base. They would make the decisions about the appropriate use of land and have all the tools to achieve the appropriate land use. Through the Agricultural Service Boards, they would be responsible for land conservation programs.

If these recommendations were implemented, there would probably be great variability across the province in approaches to the maintenance and conservation of agricultural land. That is appropriate. It is impossible to treat this vast and varied province as a single entity. The local municipalities will reflect local concern with the maintenance and conservation of the agricultural land base, ranging from high to low, depending on local attitudes. The province can show concern, provide support, and institute compensation funds, but the details and the on-the-ground implementation are best left at the local level. The Panel believes that if the recommendations proposed were adopted the appropriate level of freedom and responsibility, of concern for the rights of the individual and the needs of society as a whole, would be balanced.

The Council wishes respectfully to place these recommendations and this report before you.

Environment Council of Alberta
Panel on Maintaining and Expanding
the Agricultural Land Base in Alberta

Chas Stewart

Charles Stewart, Chairman

Alistair Crerar, Vice-Chairman

W. Van De Walle

Walter Van De Walle, Member

James Lore

James Lore, Member

George Walker

George Walker, Member

APPENDIX A

These reports were prepared as background information for public hearings on maintaining and expanding the agricultural land base in Alberta. Copies may be obtained without charge from the Environment Council's Library.

	Technical Report	Summary Report
General Background		
Terms of Reference and Background Information		X
The Agricultural Land Base in Alberta	X	X
An Analysis of Legislation Affecting Agricultural Land in Alberta	X	
Addition of Land		
Irrigation Agriculture in Alberta	X	X
Agriculture and Public Land Management in Alberta		X
Loss of Land		
Urbanization of Agricultural Land	X	X
Rural Subdivision in the Edmonton, Battle River, Red Deer, and Calgary Regional Planning Commissions, 1977 to 1979	X	
The Impacts of Linear Developments, Resource Extraction, and Industry on the Agricultural Land Base	X	X
Multiple Use of Land		
Fisheries and Wildlife Resources and the Agricultural Land Base in Alberta	X	
Recreation on Agricultural Land in Alberta	X	X
Soil Quality		
Soil Fertility and Land Productivity in Alberta	X	X
Dryland Salinity in Alberta	X	
Other		
Factors Affecting Summerfallow Acreage in Alberta	X	X
Agricultural Land and Land Use Planning in Alberta: A Review of Planning Legislation and Practices	X	X
Options for Protecting Agricultural Land		X
Economics of Agriculture in Alberta: Selected Issues	X	X
Agriculture and the Environment	X	X
Greenhouse Production in Alberta		X
Agricultural Research and Productivity in Alberta	X	X
Agricultural Land Protection Mechanisms in Canada		X

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